In the Claims:

16. (New) --An apparatus comprising:

an analog photocell;

a sample and hold amplifier, a first input to the sample and hold amplifier being a charge from the analog photocell, a second input to the sample and hold amplifier being a reference voltage; and

an analog to digital converter, the analog to digital converter converting the output of the sample and hold amplifier to a digital value.--

17. (New) --The apparatus of claim 16, wherein the sample and hold amplifier produces a scaled version of the voltage output of the analog photocell.--

18. (New) --The apparatus of claim 17, wherein the sample and hold amplifier matches the dynamic ranges of the analog photocell and the analog to digital converter.--

19. (New) --The apparatus of claim 17, wherein the sample and hold amplifier modifies the dynamic range of the analog photocell based, at least in part, on ambient light conditions.--

20. (New) --The apparatus of claim 16, wherein the analog to digital converter comprises:

a voltage controlled oscillator, an input of the voltage controller oscillator being a output from the sample and hold amplifier; and

a counter, the counter being driven by an output of the voltage controlled oscillator.--

21. (New) --The apparatus of claim 20, further comprising a memory, the memory storing an output of the counter.--

22. (New) --The apparatus of claim 21, wherein counter is reset after a certain period of time.--

23. (New) --The apparatus of claim 22, wherein the period of time is an integration time for the analog photocell.--

24. (New) --A method comprising:
inputting a charge of a analog photocell to a sample and hold amplifier;
inputting a reference voltage to the sample and hold amplifier;
converting an output of the sample and hold amplifier to a digital value.--

25. (New) --The method of claim 24, further comprising:
modifying the scale of the analog photocell charge using the sample and hold amplifier.--

26. (New) --The method of claim 25, wherein the sample and hold amplifier matches a dynamic range of the analog photocell to a dynamic range appropriate for converting the output of the sample and hold amplifier to a digital value.--

27. (New) --The method of claim 25, a dynamic range of the analog photocell is modified based, at least in part, on ambient light conditions.--

28. (New) --The method of claim 24, wherein converting the output of the sample and hold amplifier to a digital value comprises:

applying an output of the sample and hold amplifier to a voltage controlled oscillator; and

driving a counter using the output of the voltage controlled oscillator.--

29. (New) --The method of claim 28, wherein a count from the counter is proportional to the intensity of light on the analog photocell during a previous integration time period for the photocell.--

30. (New) --The method of claim 29, further comprising storing a count from the counter in a register.--

31. (New) --The method of claim 30, further comprising resetting the counter after the passage of the integration time period for the photocell.--

32. (New) --An digital photocell comprising:

an analog photocell;

a sample and hold amplifier, a first input of the sample and hold amplifier being an output of the analog photocell and a second input of the sample and hold amplifier being a reference voltage;

a voltage controlled oscillator, an input to the voltage controlled oscillator being an output of the sample and hold amplifier;

a counter, a speed at which the counter operates being controlled by an output of the voltage controlled oscillator; and

a register, the register storing an output of the counter.--

33. (New) --The digital photocell of claim 32, wherein the counter counts for a specified time period and wherein the counter is reset at the end of the time period.--

34. (New) --The digital photocell of claim 32, wherein the time period is an integration time period for the analog photocell.--

35. (New) --The digital photocell of claim 34, wherein the output stored in the register is a digital value that reflects an intensity of light incident on the analog during the previous integration time period.--

36. (New) --The digital photocell of claim 32, wherein the digital photocell is included in a pixel array.--

37. (New) --The digital photocell of claim 32, wherein the sample and hold amplifier scales the input to the voltage controlled oscillator.--

38. (New) --The digital photocell of claim 37, wherein the input to the voltage controlled oscillator is scaled based at least in part on ambient light levels.--

39. (New) --A method comprising:

applying a voltage of a analog photocell as a first input to a sample and hold amplifier;

applying a reference voltage as a second input to the sample and hold amplifier;

applying an output of the sample and hold amplifier to a voltage controlled oscillator;

driving a counter with the output of the voltage controlled oscillator;

saving a count from the counter; and

resetting the counter at the conclusion of a time period.--

40. (New) --The method of claim 39, wherein the time period is an integration period of the analog photocell.--

41. (New) --The method of claim 39, wherein the count from the counter is saved in a register.--

42. (New) --The method of claim 39, wherein the count from the counter is proportional to intensity of light incident on the analog photocell.--